

## REMARKS

In the Office Action mailed on March 18, 2003 by the United States Patent and Trademark Office, the Examiner rejected claims 1-26. Minor amendments have been made to the specification in response to the Examiner's objections and claims 1-26 remain unamended in the above-identified patent application after entry of this response. Applicant respectfully requests reconsideration in light of the foregoing specification amendments and the following remarks. The foregoing amendments to the specification and the following remarks are believed to be fully response to the Office Action mailed on March 18, 2003.

### I. SPECIFICATION OBJECTIONS

The Examiner objected to specification because of identified informalities. Specifically, the Examiner stated that subscripts and superscripts should be used, where conventional, for scientific equations.

In view of this objection, Applicants has amended the specification to correct the identified informalities. Accordingly, the Examiner is respectfully requested to withdraw the objection to the specification.

### II. REJECTIONS UNDER 35 USC 112, FIRST PARAGRAPH

The Examiner rejected claims 1-26 under 35 USC 112, first paragraph, as containing subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant respectfully traverses these rejections.

It is respectfully submitted that the Examiner has failed to overcome the strong presumption that an adequate description of the claimed invention is present when the application is filed by the Applicant. MPEP § 2164.04 states that the Examiner's language should focus on the factors set forth in MPEP § 2164.01(a), reasons and evidence that would lead the Examiner to conclude that the specification fails to teach how to make and use the claimed invention without undue experimentation. However, the Examiner has merely recited his interpretation of the specification and stated that specifically identified "terminology is just confusing," even though it is well settled that an inventor can be his or

her own lexicographer. Accordingly, the Examiner's assertion is unsupported and without additional factors, reasons or evidence that would lead the Examiner to conclude that the specification fails to meet the requirements of 35 USC 112, first paragraph, Applicant submits the Examiner's rejections are improper. Therefore, Applicant respectfully requests withdrawal of the rejections under 35 USC 112, first paragraph.

### III. REJECTIONS UNDER 35 U.S.C. 103(a)

The Examiner rejected claims 1-26 under 35 USC 103(a) as being unpatentable over U.S. patent no. 5,786,791 as issued to Bruckert on July 28, 1998 (hereinafter referred to as "Bruckert") in view of U.S. patent no. 5,541,608 as issued to Murphy et al on July 30, 1996 (hereinafter referred to as "Murphy et al"). In addition, the Examiner rejected claims 2 and 16 under 35 USC 103(a) as being unpatentable over Bruckert and Murphy et al in further view of U.S. patent no. 4,320,400 as issued to Chasek on March 16, 1982 (hereinafter referred to as "Chasek"). Furthermore, the Examiner rejected claims 1-26 under 35 USC 103(a) as being unpatentable over Bruckert, Murphy and U.S. patent no. 4,170,774 as issued to Schaefer on October 9, 1979 (hereinafter referred to as "Schaefer"). Moreover, the Examiner rejected claims 1-26 under 35 USC 103(a) as being unpatentable over Bruckert, Chasek, and Murphy. Applicant respectfully traverses these rejections.

It is respectfully submitted that the Examiner has failed to establish prima facie obviousness. As the Examiner acknowledges in the rejections, Bruckert fails to disclose a difference calculator configured to determine a phase difference between said first ray and said second ray and an angle estimator configured to calculate a plurality of DOA values based at least in part upon said phase difference. However, the Examiner has failed to establish why one having ordinary skill in the art would have been led to the claimed invention by the expressed teachings or suggestions found in the prior art, or by implications contained in such teachings or suggestions. (*See In Re Sernaker*, 702 F.2d 989, 217 USPQ 1 (Fed. Cir. 1983)). Rather, the Examiner presents a conclusory statement that it would have been obvious to include phase difference determination in addition to amplitude difference determination, as taught by one of the other cited references, into the system disclosed by Bruckert, in order to enable the determination of much more accurate DOAs and therefore much more accurate remote unit locations for 911 calls in multipath environments.

In addition, is respectfully submitted that this does not provide an implied or expressed teaching or suggestion in any of the primary or secondary references. Furthermore, the Examiner establishes the alleged obviousness based solely on the present inventor's teachings, and obviousness may not be established using hindsight or in view of the teachings or suggestions of the invention. Moreover, the mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. Lastly, at the time the invention was made, according to then state-of-the-art techniques, it was not common to jointly process signals from adjacent sectors in cellular systems.

More specifically, in each of the references cited by the examiner, radar systems are described while a communication system is set forth in the originally filed claims of the present invention. In radar system designs, the multiplicity of antenna elements is intended for joint processing. It is implicit in a radar system that the signals from multiple antennas are available for joint processing (e.g., phase and amplitude difference generation). It is also implicit that the radios and other supporting circuitry of a radar system support this type of operation (e.g. by sharing oscillators and using stable amplifiers to support phase coherence). However, the concept of combining signals from adjacent sectors of a cellular or other communication antenna tower in any way was unanticipated and non-obvious at the time of the invention.

For example, at time of the invention, traditional cellular processing had always been disjoint between sectors. Therefore, application of phase interferometry to a communication system was not available for coherent signal combining between adjacent sectors as evidenced by such communication standards as IS-95 CDMA, in which noncoherent modulation is used in the uplink and the air interface is designed in this manner to permit "noncoherent" combining of signals from disparate sectors and sites. From this point of view, the IS-95 standard itself teaches away from the concept of coherent signal processing between disjoint antennas on the uplink.

Additionally, at the time of the invention, the traditional practice in manufacture of cellular systems was to provide the radios associated with the sectors of a base station as disjoint systems at the RF coherence level, which are incapable of joint coherent processing. Joint processing was only permitted for the antennas within a sector and primarily in support

of diversity combining for overcoming fading processes. This is directly in contrast to radar systems, in which the radio array and all components that process the signals from separate antennas are treated as a jointly-designed system. Knowledge of the possibility of coherent joint processing, which is demonstrated with the present invention, was utilized to change then-current opinions that impacted current communication system design.

In view of the foregoing, it is respectfully submitted that the rejections under 35 USC 103(a) are improper and Applicants respectfully request withdrawal of these obviousness rejections.

## II. CONCLUSION

Applicant respectfully submits that the above-identified application as amended is now in condition for allowance and the Applicants therefore earnestly request such allowance. Should the Examiner have any questions or wish to discuss the foregoing response and amendment, Applicants request that the Examiner contact the undersigned at (480) 385-5060.

If for some reason Applicants have not requested a sufficient extension and/or have not paid a sufficient fee for this response and/or for the extension necessary to prevent abandonment of this application, please consider this as a request for an extension for the required time period and/or authorization to charge Deposit Account No. 50-2091 for any fee which may be due.

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Respectfully submitted,

  
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